

Detail about Pharm. D Course

Regulations framed under section 10 of the Pharmacy Act, 1948 (8 of 1948). (As approved by the Government of India, Ministry of Health vide, letter No.V.13013/1/2007-PMS, dated the 13th March, 2008 and notified by the Pharmacy Council of India). No.14-126/2007-PCI. In exercise of the powers conferred by section 10 of the Pharmacy Act, 1948 (8 of 1948), the Pharmacy Council of India, with the approval of the Central Government, hereby makes the following regulations, namely:-

1. Short title and commencement.

- I. These regulations may be called the Pharm. D. Regulations 2008.
 - II. They shall come into force from the date of their publication in the official Gazette.
2. Pharm. D. shall consist of a certificate, having passed the course of study and examination as prescribed in these regulations, for the purpose of registration as a pharmacist to practice the profession under the Pharmacy Act, 1948.

3. Duration of the course.

- I. Pharm. D.: The duration of the course shall be six academic years (five years of study and one year of internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of six years duration is divided into two phases.

Phase I: - consisting of First, Second, Third, Fourth and Fifth academic year.

Phase II: - consisting of internship or residency training during sixth year involving posting in specialty units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services and acquires skill under supervision so that he or she may become capable of functioning independently.

- II. Pharm. D. (Post Baccalaureate): The duration of the course shall be for three academic years (two years of study and one year internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of three years duration is divided into two phases. Phase I: - consisting of First and Second academic year.

Phase II: - consisting of Internship or residency training during third year involving posting in specialty units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services, and acquires skill under supervision so that he or she may become capable of functioning independently.

4. Conditions to be fulfilled by the academic training institution:

Any authority or institution in India applying to the Pharmacy Council of India for approval of courses of study for Pharm. D. and Pharm. D. (Post Baccalaureate) under sub-section

- I. Of section 12 of the Pharmacy Act, 1948 shall comply with the infrastructural facilities as prescribed by the Pharmacy Council of India from time to time.

- II. Pharm. D. and Pharm. D. (Post Baccalaureate) programs shall be conducted only in those institutions which - a) are approved by the Pharmacy Council of India for B. Pharm course as provided under section 12 of the Pharmacy Act, 1948; b) have 300 bedded hospital attached to it.

A. Hospital Details

- I. Institution with their own hospital of minimum 300 beds.
- II. Teaching hospital recognized by the Medical Council of India or University, or a Government hospital not below the level of district headquarter hospital with 300 beds with clearly defined Memorandum of Understanding including housing pharmacy practice department with minimum carpet area of 30 square feet per student along with consent to provide the professional manpower to support the program.
- III. Corporate type hospital with minimum 300 beds with clearly defined Memorandum of Understanding including housing pharmacy practice department with minimum carpet area of 30 square feet per student along with consent to provide the professional manpower to support the program.
- IV. Number of institutions which can be attached to one hospital shall be restricted by the student pharmacist to bed ratio of 1:10.

B. Specialty

- I. Tertiary care hospitals are desirable
- II. Medicine[compulsory], and any three specialization of the following
- 1) Cardiology
 - 2) Endocrinology
 - 3) Surgery
 - 4) Pediatrics
 - 5) Urology
 - 6) Gynecology and obstetrics
 - 7) Orthopedics

C. Location of the Hospital: Within the same limits of Corporation or Municipality or Campus with Medical Faculty involvement as adjunct faculty.

5. Academic curriculum for Pharm. D. course.

First Year:

Second Year:

S.No.	Name of Subject
1.1	Human Anatomy and Physiology
1.2	Pharmaceutics
1.3	Medicinal Biochemistry
1.4	Pharmaceutical Organic Chemistry
1.5	Pharmaceutical Inorganic Chemistry
1.6	Remedial Mathematics / Biology

S.No	Name of Subject
2.1	Pathophysiology
2.2	Pharmaceutical Microbiology
2.3	Pharmacognosy & Phytopharmaceuticals
2.4	Pharmacology-I
2.5	Community Pharmacy (Hospital Training)
2.6	Pharmacotherapeutics-I (Hospital Training)

Third Year:

S.No.	Name of Subject
3.1	Pharmacology-II
3.2	Pharmaceutical Analysis
3.3	Pharmacotherapeutics-II (Hospital Training)
3.4	Pharmaceutical Jurisprudence
3.5	Medicinal Chemistry
3.6	Pharmaceutical Formulations

Fourth Year:

S.No.	Name of Subject
4.1	Pharmacotherapeutics-III (Hospital Training)
4.2	Hospital Pharmacy (Hospital Training)
4.3	Clinical Pharmacy (Hospital Training)
4.4	Biostatistics & Research Methodology
4.5	Biopharmaceutics & Pharmacokinetics
4.6	Clinical Toxicology

Fifth Year:

S.No.	Name of Subject
5.1	Clinical Research
5.2	Pharmacoepidemiology and Pharmacoeconomics
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring
5.4	Clerkship * (Hospital Training)
5.5	Project work (Six Months) (Hospital Training)

Sixth Year: (Total Hospital Training)

Internship or residency training including postings in speciality units. Student should independently provide the clinical pharmacy services to the allotted wards.	
Sl No	Description
1.	Six months in General Medicine department, and
2.	Two months each in three other specialty departments (Ortho, Gyno, Surgery, Pediatric Dept)

6. Hospital posting: Every student shall be posted in constituent hospital for a period of not less than fifty (50) hours to be covered in not less than 200 working days in each of second, third & fourth year course. Each student shall submit report duly certified by the preceptor and duly attested by the Head of the Department or Institution as prescribed. In the fifth year, every student shall spend half a day in the morning hours attending ward rounds on daily basis as a part of clerkship. Theory teaching may be scheduled in the afternoon.

7. Subjects with hospital training for Pharm. D.**Community Pharmacy**

Scope: In the changing scenario of pharmacy practice in India, Community Pharmacists are expected to offer various pharmaceutical care services. In order to meet this demand, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counseling, health screening services for improved patient care in the community set up.

Objectives: Upon completion of the course, the student shall be able to: -

- ✓ Know pharmaceutical care services.
- ✓ Know the business and professional practice management skills in community pharmacies.

- ✓ Do patient counseling & provide health screening services to public in community pharmacy.
- ✓ Respond to minor ailments and provide appropriate medication.
- ✓ Show empathy and sympathy to patients; and f. appreciate the concept of rational drug therapy.

Pharmacotherapeutics - I, II & III

Scope of the Subject: This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases. This will enable the student to understand the pathophysiology of common diseases and their management.

Objectives: At completion of this subject it is expected that students will be able to understand -

- ✓ The pathophysiology of selected disease states and the rationale for drug therapy.
- ✓ Summarizes the therapeutic approach to management of these diseases including reference to the latest available evidence.
- ✓ The controversies in drug therapy.
- ✓ The importance of preparation of individualized therapeutic plans based on diagnosis.
- ✓ Needs to identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).

Hospital Pharmacy

Scope: In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug dispensing, manufacturing of parenteral preparations, drug information, patient counseling, and therapeutic drug monitoring for improved patient care.

Objectives: Upon completion of the course, the student shall be able to -

- ✓ Know various drug distribution methods.
- ✓ Know the professional practice management skills in hospital pharmacies.
- ✓ Provide unbiased drug information to the doctors.
- ✓ Know the manufacturing practices of various formulations in hospital set up.
- ✓ Appreciate the practice based research methods; and f. appreciates the stores management and inventory control.

Clinical Pharmacy

Objectives of the Subject: Upon completion of the subject student shall be able to (Know, do, appreciate) -

- ✓ Monitor drug therapy of patient through medication chart review and clinical review.
- ✓ Obtain medication history interview and counsel the patients.
- ✓ Identify and resolve drug related problems.
- ✓ Detect, assess and monitor adverse drug reaction.

- ✓ Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states.
- ✓ Retrieve, analyze, interpret and formulate drug or medicine information.

8. Project work: To allow the student to develop data collection and reporting skills in the area of community, hospital and clinical pharmacy, a project work shall be carried out under the supervision of a teacher. The project topic must be approved by the Head of the Department or Head of the Institution. The same shall be announced to students within one month of commencement of the fifth year classes. Project work shall be presented in a written report and as a seminar at the end of the year. External and the internal examiners shall do the assessment of the project work. (2) Project work shall comprise of objectives of the work, methodology, results, discussions and conclusions.

9. Clerkship: Attending ward rounds on daily basis. Students' shall present the collected medical cases followed by discussion. Students' capabilities in delivering clinical pharmacy services, pharmaceutical care planning and knowledge of therapeutics shall be assessed.

10. Internship

Specific objectives:

- To provide patient care in cooperation with patients, prescribers, and other members of an inter-professional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social or behavioral or administrative, and clinical sciences that may impact therapeutic outcomes.
- To manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.
- To promote health improvement, wellness, and disease prevention in co-operation with patients, communities, at-risk population, and other members of an inter-professional team of health care providers.
- To demonstrate skills in monitoring of the National Health Programs and schemes oriented to provide preventive and promotive health care services to the community.
- To develop leadership qualities to function effectively as a member of the health care team organized to deliver the health and family welfare services in existing socio-economic, political and cultural environment.
- To communicate effectively with patients and the community.

Other details:

- All parts of the internship shall be done, as far as possible, in institutions in India. In case of any difficulties, the matter may be referred to the Pharmacy Council of India to be considered on merits.
- Where an intern is posted to district hospital for training, there shall be a committee consisting of representatives of the college or university, and the district hospital administration, who shall regulate the training of such trainee. For such trainee a certificate of satisfactory completion of training shall be obtained from the relevant administrative authorities who shall be countersigned by the Principal or Dean of College.
- Every candidate shall be required, after passing the final Pharm. D. or Pharm. D. (Post Baccalaureate) examination as the case may be to undergo compulsory rotational internship to the satisfaction of the College authorities and University concerned for a period of twelve months so as to be eligible for the award of the degree of Pharm. D. or Pharm. D. (Post Baccalaureate) as the case may be.

Assessment of internship:

- The intern shall maintain a record of work which is to be verified and certified by the preceptor (teacher practitioner) under whom he works. Apart from scrutiny of the record of work, assessment and evaluation of training shall be undertaken by an objective approach using situation tests in knowledge, skills and attitude during and at the end of the training. Based on the record of work and date of evaluation, the Dean or Principal shall issue certificate of satisfactory completion of training, following which the university shall award the degree or declare him eligible for it.
- Satisfactory completion of internship shall be determined on the basis of the following:-
 - (1) Proficiency of knowledge required for each case management SCORE 0-5
 - (2) The competency in skills expected for providing Clinical Pharmacy Services SCORE 0-5
 - (3) Responsibility, punctuality, work up of case, involvement in patient care SCORE 0-5
 - (4) Ability to work in a team (Behavior with other healthcare professionals including medical doctors, nursing staff and colleagues). SCORE 0-5
 - (5) Initiative, participation in discussions, research aptitude. SCORE 0-5

Poor	Fair	Below Average	Average	Above Average	Excellent
0	1	2	3	4	5

A Score of less than 3 in any of above items will represent unsatisfactory completion of internship.

Various clinical services provided by Pharm. D students in hospital

- Ward round participation along with clinician for clinical discussion pertaining to medication queries raised by various clinicians by using standard drug information reference.
- Drug therapy monitoring for special cases and provide necessary drug information for management of those cases by clinicians.
- Adverse drug reactions (ADRs) identification, monitoring, reporting & documentation.
- Drug-drug interaction observation and documentation for proper understanding based on standard reference and reporting to clinician to avoid complication.
- Understanding about patient's medication adherence and provide patient counseling to improve adherence.
- Provide Drug and poison information service in various departments units of the hospital.
- Preparation of individual pharmaceutical care plan with patient specific laboratory data in collaboration with the clinician.
- Provide counseling and information regarding drug and disease to the patients.
- Various non-invasive observational studies being conducted as part of Pharm. D curriculum in various departments and translated into publication under clinician's supervision.

Career opportunities for Pharm. D students:

- The main career focus for Pharm D is practicing pharmacy in community set-up in the United States of America.

As this process of permission is very lengthy and expensive also, some alternate options and opportunities have also come up in India and abroad. These are as follows:

- Drug and Poison information service.
- Adverse Drug Reaction Monitoring and Reporting.
- Identification and management of DRPs and Medication Errors
- Individualization of dosage regimen.
- Drug Utilization Evaluation.

Pharmaceutical Industry

- Clinical Trials (as CRO, CRA, SMO in Phase I, II, III trials)
- Bioequivalence & Pharmacokinetic Study
- Medical Writing
- Regulatory Affairs
- Phase IV Clinical Trial or Pharmacovigilance.

Medical Insurance Company

- Pharmacoeconomics Study
- Medical Transcription
- Processing of Medical Claim Bills.

Academics

- Teaching Faculty for Pharm D Course
- Teaching Faculty for other health care professionals.

Government Job

- Indian Pharmacopoeia Commission (<http://www.ipc.gov.in/>) under Ministry of Health & Family welfare, Govt. of India, Has initiated recruitment of Pharm. D graduates in various Govt. sectors.